

BOULEVARD BRIDGE

HAER NO. TN-17

Old Dechard-Winchester Road spanning Wagner Creek  
Between the city of Dechard, Tn. and the city of  
Winchester, Tn.  
Franklin County  
Tennessee

HAER  
TENN.  
26-DECH,  
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
NATIONAL PARK SERVICE  
Department of the Interior  
Southeast Region  
Atlanta, Georgia 30303

HISTORIC AMERICAN ENGINEERING RECORD

HAER  
TENN,  
26-DECH,  
1-

Boulevard Bridge

HAER No. TN-17

Location: Spanning Wagner Creek at Old Decherd-Winchester Road  
on the boundary between the cities of Dechard and  
Winchester, Franklin County, Tennessee

Date of Construction: 1909

Builder/Designer: Nashville Bridge Company

Present Owner: Jointly owned by:

City of Dechard  
City Hall  
Dechard, Tennessee 37324

and

City of Winchester  
City Hall  
Winchester, Tennessee 37398

Present Use: Vehicular bridge

Significance: The Boulevard Bridge is a representative, yet  
attractive, example of a through Pratt steel truss.  
The most unique and significant feature of the bridge  
is its unusual skewed portal treatment.

Historian: Martha Carver  
Tennessee Department of Transportation  
September 1984

Edited and  
Transmitted by: Jean P. Yearby, HAER, 1987

The Boulevard Bridge is located over Wagner Creek in a developed area on the boundary between the cities of Decherd and Winchester. The bridge was erected in 1909 for the city of Decherd at a cost of \$3,253.00.<sup>1</sup> It was fabricated by the Nashville Bridge Company,<sup>2</sup> a major Tennessee company that operated extensively throughout the Southeast. This prolific company was formed by Arthur J. Dyer in 1902. Numerous bridges remain in Tennessee by this firm. The bridge derives significance for its association with the Nashville Bridge Company.

The Boulevard Bridge also derives significance from its representative nature as a through Pratt truss. Yet, its primary significance is related to its unusual skewed portal treatment. With Tennessee's historic bridge inventory approximately seventy percent completed, this bridge is the only skewed through truss yet surveyed in Tennessee.

Many turn-of-the-century engineering books advised against the construction of skewed bridges due to reasons such as possibly hydrology problems or additional expenses.<sup>3</sup> One engineer, in a chapter entitled "First Principles of Designing," states categorically in Principle XIII, "The building of a skew bridge should always be avoided when it is practicable." He then lists these three reasons why skewed bridges are inadvisable:

The objections to a skew-bridge are these: First, it is fully twice as troublesome to design as a square structure; second, the liability to error in both shop and field is greatly increased by the skew; and third, the resulting bridge is never so rigid, nor is it so satisfactory in a number of other particulars as a bridge without this objectionable feature.<sup>4</sup>

The Boulevard Bridge, however, was constructed with a 137°/47° skew, and it is not clear why a skewed design was chosen for this site. Due to the difficulties in properly designing the lateral stress distributions, few truss bridges were built skewed.

The Boulevard Bridge is composed of one span, a through (high) steel Pratt truss span. Pin connected, the truss span is 101 feet in length. It has a vertical clearance of 15 feet and an overall height of 18 feet. The curb-to-curb width is 13.6 feet, and the out-to-out width is 18 feet. The bridge sits on massive concrete abutments. At some unknown date, four sets of helper bents were placed under each floor beam; it is also unknown if any structural alterations were made to the bottom lateral system at that time.

Of steel construction, the top chord and end posts are composed of channels with battens underneath. The bottom chords contained paired rectilinear eyebars. The verticals in compression are small channels with lacing. The hip verticals are composed of paired angles with battens. Diagonal members are either paired rectilinear eyebars and eye-rods; counters are tie-rods.

Two features of the bridge are somewhat unusual. One feature is the portal treatment. The portal bracing is a solid beam with three cut-through decorative elements. These decorative elements are composed of a large circle with five smaller circles abutting it. Between these medium-sized circles are small circles. The portal knee bracing also contains a decorative design of three interconnecting circles. But, as stated earlier, the most unusual feature of the bridge is that it is skewed. While most truss bridges are erected at a  $90^{\circ}/90^{\circ}$  skew, the Boulevard Bridge is built on a  $133^{\circ}/47^{\circ}$  skew.

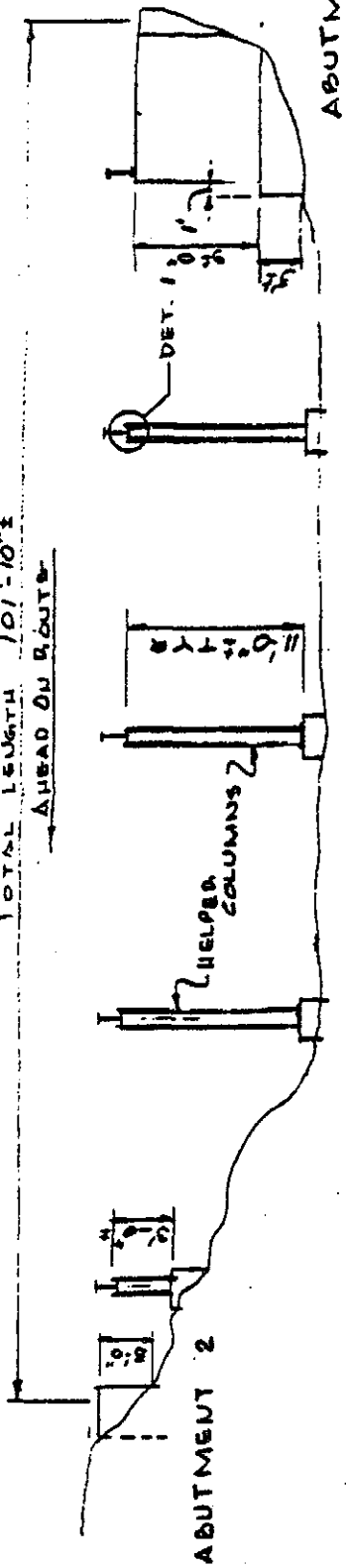
In recent years, a newer road was built to bypass the Old Decherd-Winchester Road on which the Boulevard Bridge is located, but the bridge continues to carry a substantial amount of local traffic.

#### FOOTNOTES

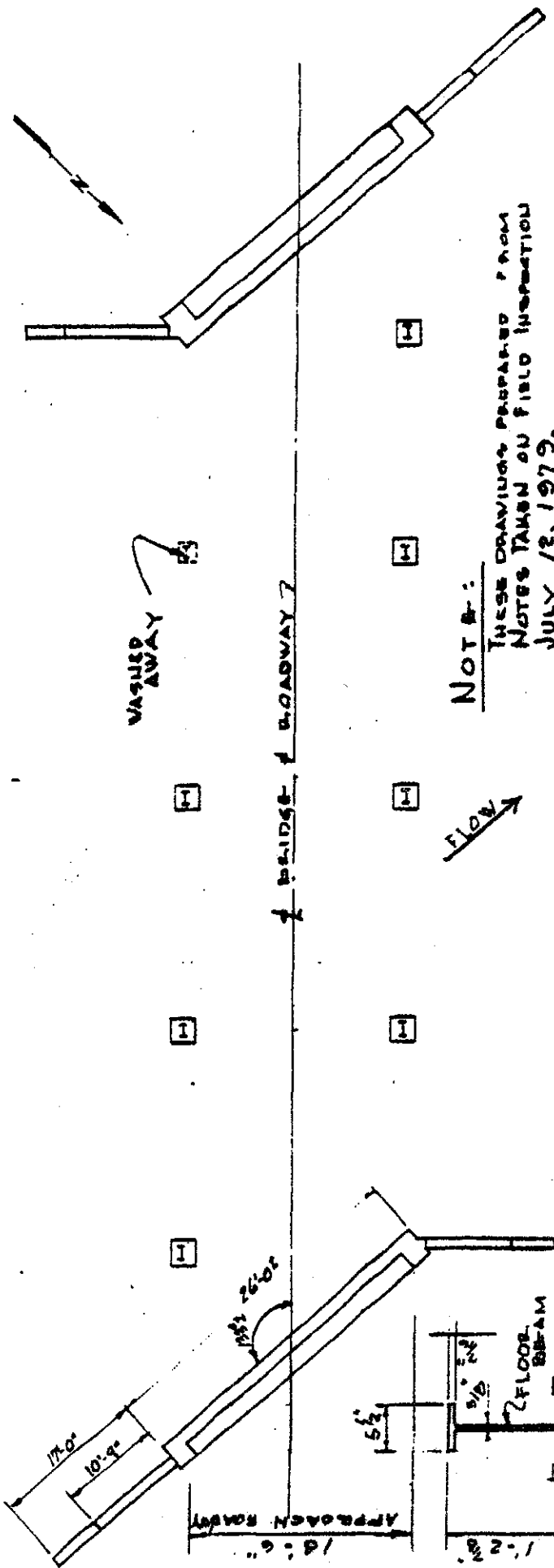
- 1 Bridge plaques and Nashville Bridge Company contract #3293.
- 2 Ibid.
- 3 International Library of Technology, 119 vols. (New York: Burr Printing Company, 1901-1912), 96: 39-40.
- 4 J. A. L. Waddell, The Designing of Ordinary Iron Highway Bridge. (New York: Wiley and Sons, 1888), p. 271.

TOTAL LENGTH 101'-10"

AHEAD ON ROUTE



# ELEVATION

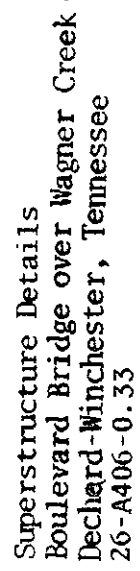


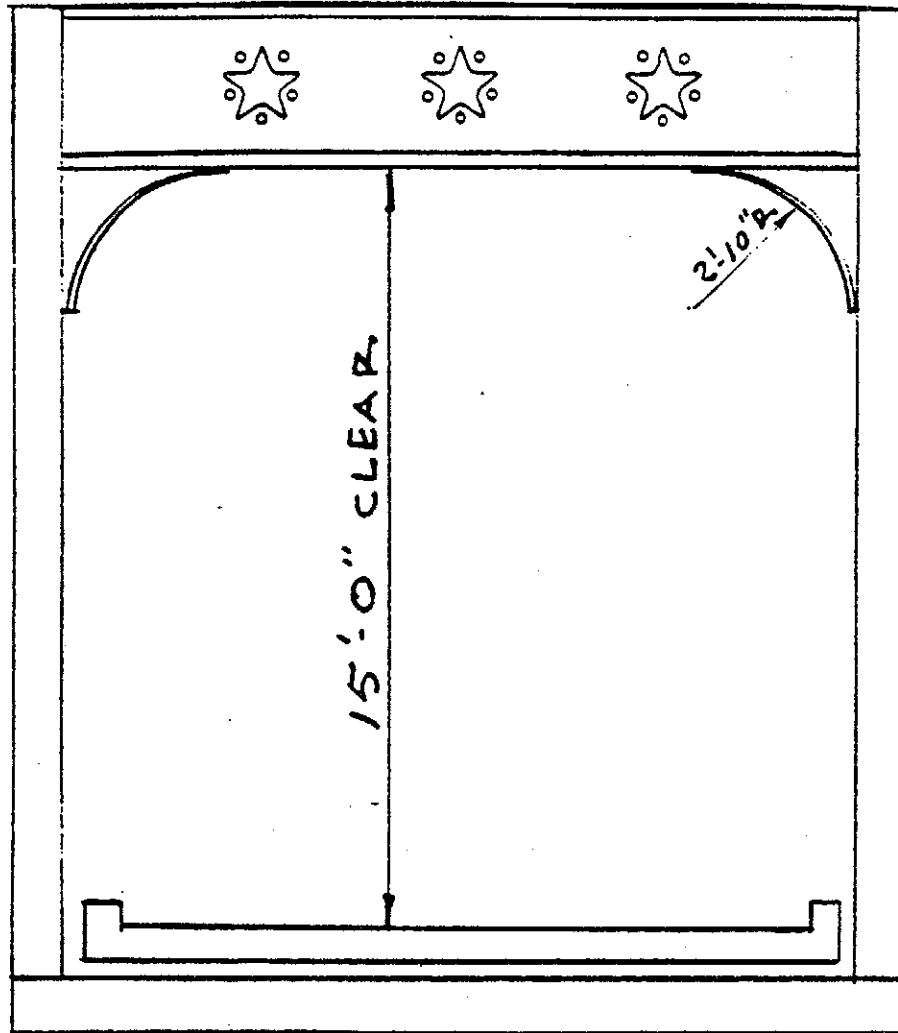
NOTE:  
THESE DRAWINGS PREPARED FROM  
NOTES TAKEN ON FIELD INSPECTION  
JULY 12, 1979.

# PLAN

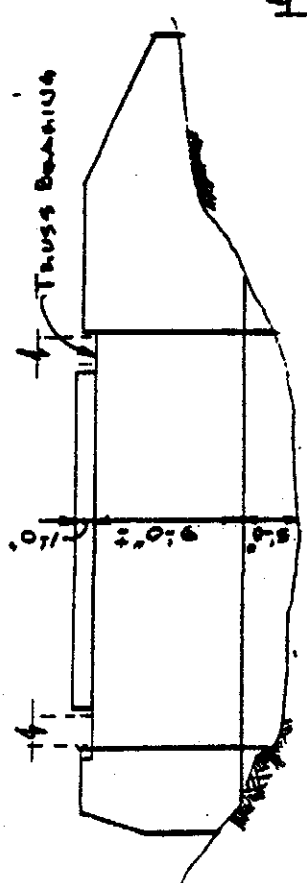
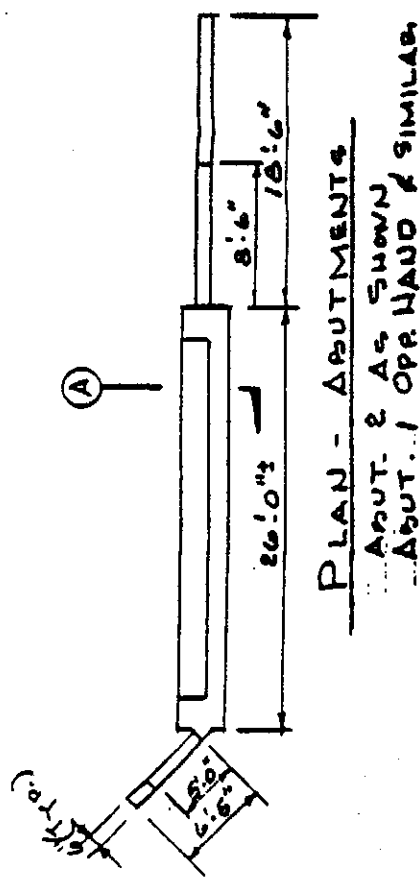
Layout of Bridge  
Boulevard Bridge over Wagner Creek  
Dechard-Winchester, Tennessee  
26-A406-0.33

# DETAIL #1

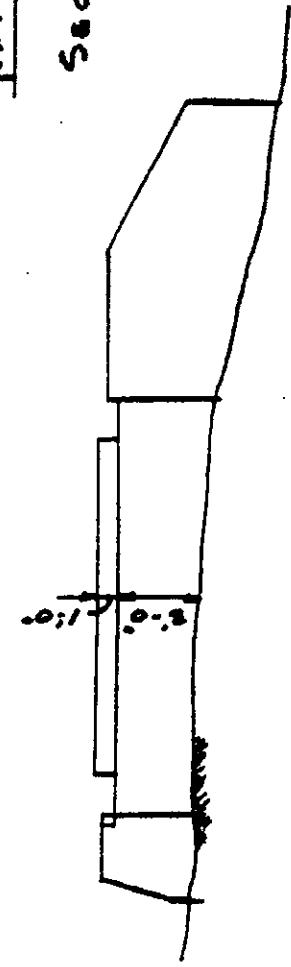




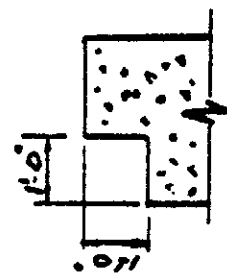
Portal Treatment  
Boulevard Bridge over Wagner Creek  
Dechard-Winchester, Tennessee  
26-A406-0.33



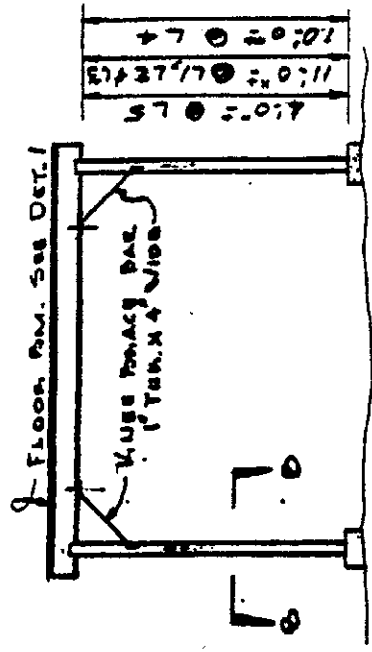
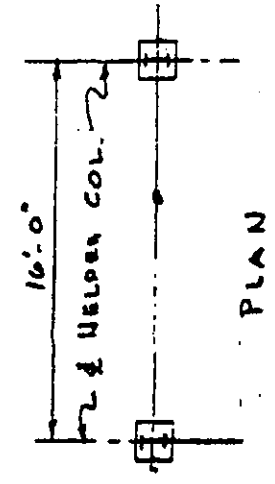
FRONT ELEVATION ABUT. 1



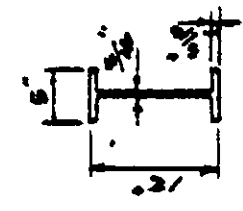
FRONT ELEVATION ABUT. 2



SECT. A



ELEVATION

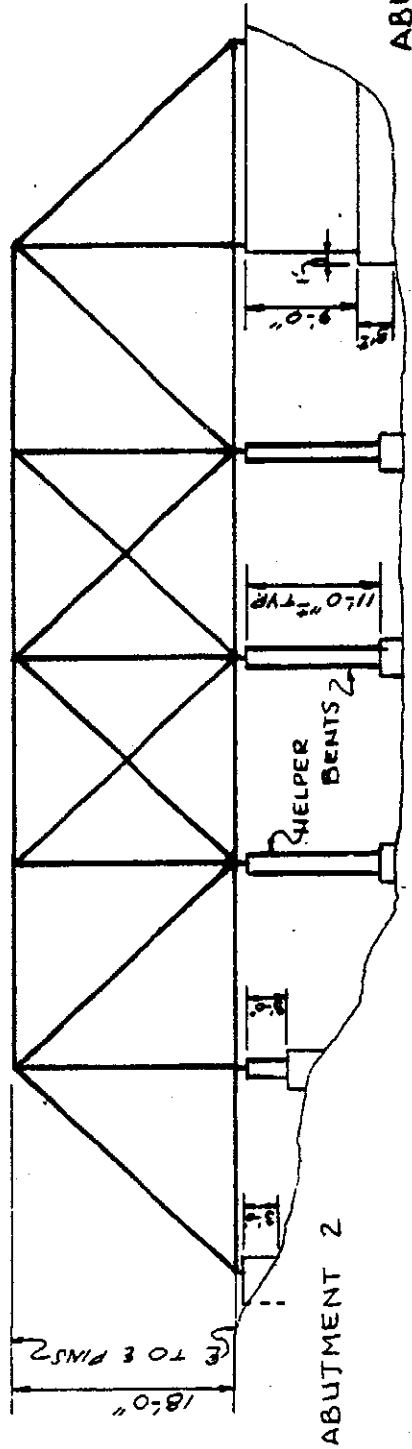


SECTION B-B

Substructure Details  
 Boulevard Bridge over Wagner Creek  
 DeChard-Winchester, Tennessee  
 26-A406-0.33



TOTAL LENGTH 101'10" ±  
6 PANELS @ 16'-11"



ELEVATION

Bridge Elevation  
Boulevard Bridge over Wagner Creek  
Dechard-Winchester, Tennessee  
26-A406-0.33